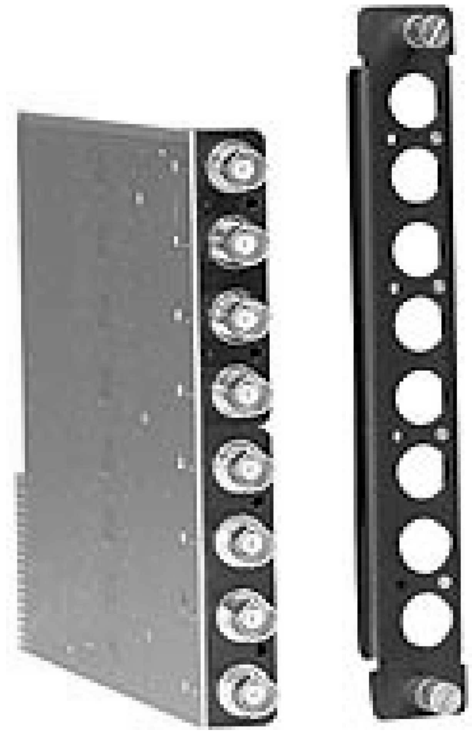


MANUAL PART NUMBER: 400-0173-003

VM2144VS/VM2145SS/VM2146UX

8-OUT VIDEO/SYNC OUTPUT CARDS FOR V-MATRIX™ WITH COVER PLATE

USER'S GUIDE

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Page

This manual covers:

VM2144VS - 8-Out Video Output Card with Cover Plate

VM2145SS - 8-Out Sync Output Card with Cover Plate

VM2146UX - 8-Out Universal Output Card with Cover Plate

PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **VM2144VS/VM2145SS/VM2146UX**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **VM2144VS/VM2145SS/VM2146UX** and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

1.1 GENERAL

- Qualified ALTINEX service personnel, or their authorized representatives must perform all service.

1.2 INSTALLATION

- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **VM2144VS/VM2145SS/VM2146UX** in direct sunlight, near heaters or heat radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- Handle the **VM2144VS/VM2145SS/VM2146UX** carefully. Dropping or jarring can damage the card.
- Insert the card carefully into the slots of the V-Matrix™ without bending any edges.

1.3 CLEANING

- Clean only the connector area with a dry cloth. Never use strong detergents or solvents, such as alcohol or thinner. Do not use a wet cloth or water to clean the card. Do not clean or touch any component or PCB.

1.4 FCC / CE NOTICE

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

ABOUT YOUR V-MATRIX™ VIDEO/SYNC OUTPUT CARDS 2

VM2144VS/VM2145SS/VM2146UX
8-out V-MATRIX™ Video/Sync Output Cards

The **VM2144VS/VM2145SS/VM2146UX** are 8-output Cards designed for use in a V-Matrix™ enclosure and can handle a wide array of signal formats and connector types. When installed in a V-Matrix™ Basic Enclosure, these Output cards enable the connection of eight composite sources when used with the **VM2143VS** 8-in Video/Sync Input Card. *See the **VM2143VS** for more information.*

The **VM2144VS/VM2145SS** 8-output video/sync cards provide built-in ground loop isolation (GLI on Board™) through the use of differential inputs. This is an extremely important feature because it protects against hum bars and other interference caused by ground loops, which notoriously wreak havoc on large-scale matrix systems. Both the input and output video cards provide a bandwidth of 350 MHz @ –3dB, allowing them to pass extremely high-resolution computer video/sync signals without signal degradation.

The **VM2145SS** has a negative and positive polarity. It can be used as sync output by setting its jumpers to the appropriate position.

The **VM2146UX** is 8-output Universal Card that can process video and sync output signals. See jumper settings for sync and video output for more information.

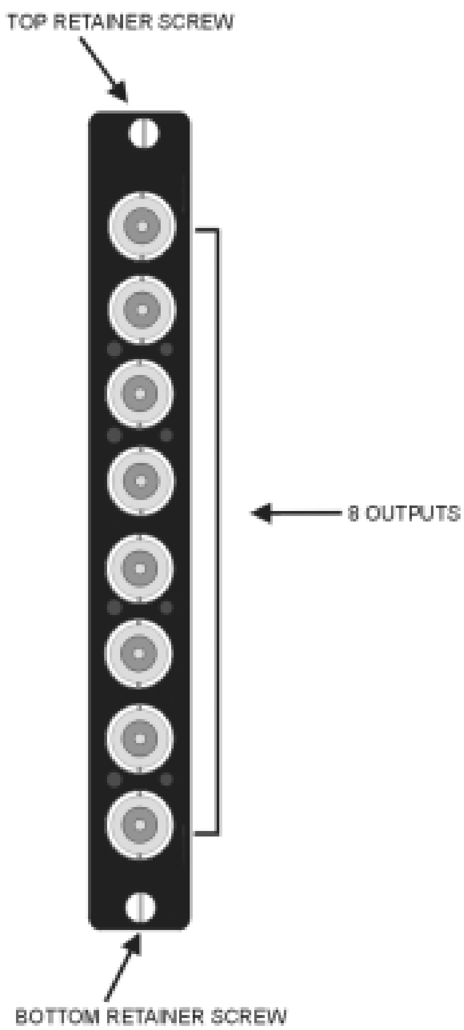
All input and output cards are "hot-swappable" with finger adjustable lock-down screws and secure, positive engagement card-edge connections.

TECHNICAL SPECIFICATIONS 3

FEATURES/ DESCRIPTION	VM2144VS/VM2145SS/ VM2146UX
Output	
Impedance	75 Ohms, 1%
Return Loss	40dB @ 10MHz
DC on Outputs	+/-30mV (max)
Equalization	+3dB @ 80-100 MHz
Gain	
Gain	1.01
Gain Stability	0.01%
Gain Adjust Range	None
Gain Difference between All Channels	2% max
Linear Distortions	
Frequency Response	0-100MHz
Vertical Tilt	<0.01%
Horizontal Tilt	<0.01%
Low Frequency	<0.01%
Crosstalk	
Video to Video	<45dB@ 5MHz, <35dB @ 10MHz <31dB @ 35MHz, <29db @ 100MHz all inputs & outputs hostile
Switching Characteristics	
Switching Time	<10ms all channels
Video Input/Output Card Bandwidth (128x128)	
Input 1 to Output 128	>280 MHz @ -3dB
Input 64 to Output 64	>280 MHz @ -3dB
Input 128 to Output 1	> 280 MHz @ -3dB
Output Sync Signal	
Composite, Horizontal, Vertical	TTL (+/-)
Impedance	22 Ohms
Frequency Compatibility	
Horizontal	15-130kHz
Vertical	25-180Hz

Table 1. **VM2144VS/VM2145SS/VM2146UX**

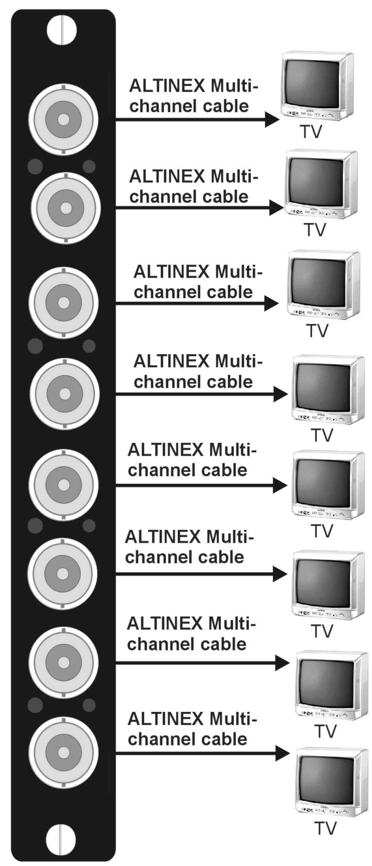
PRODUCT DESCRIPTION 4



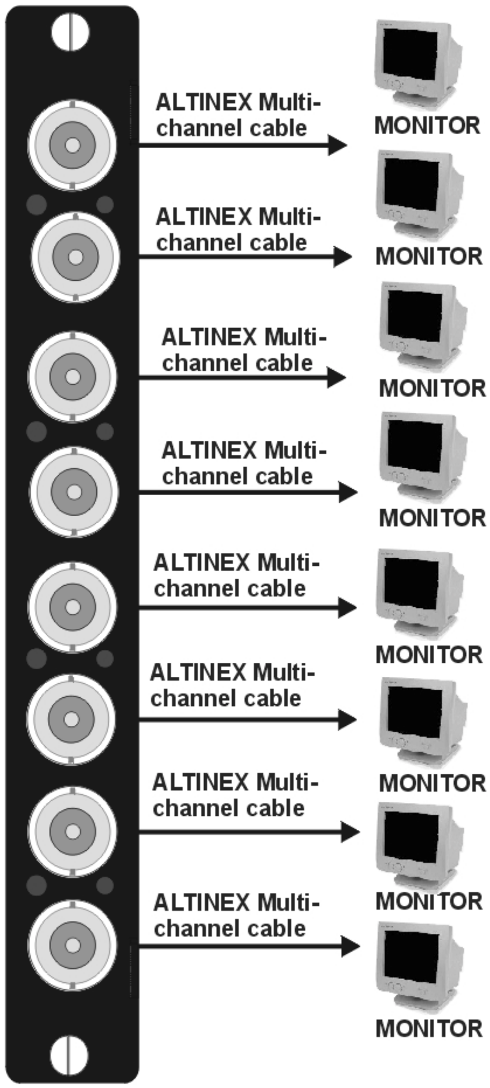
Note that cards are shown with cover plate attached.

APPLICATION DIAGRAM 5

Application 1: Diagram for Video Signal



Application 2: Diagram for Sync Signal

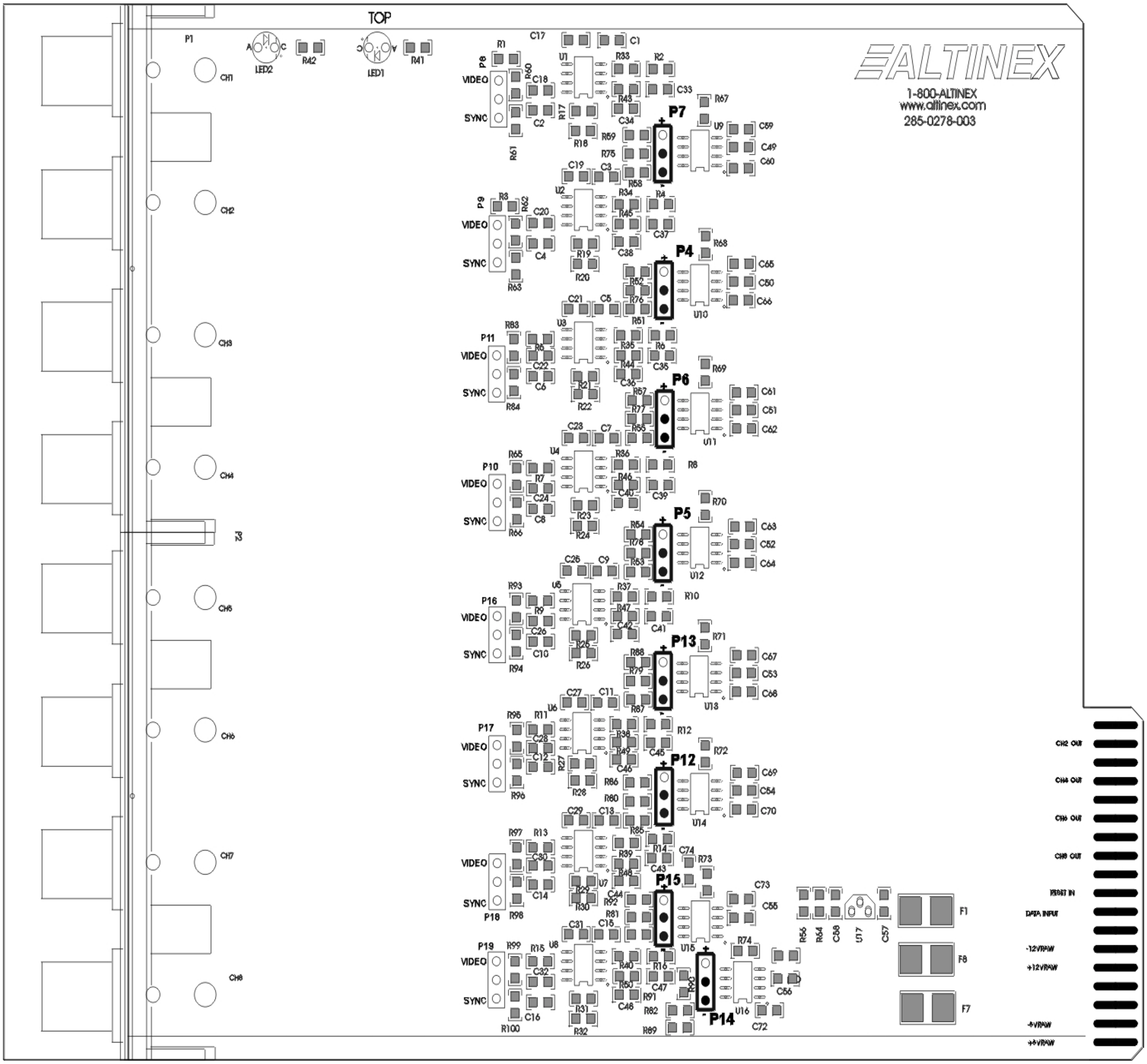


Application 3: Setting Jumpers for Sync - Positive Polarity (VM2145SS)



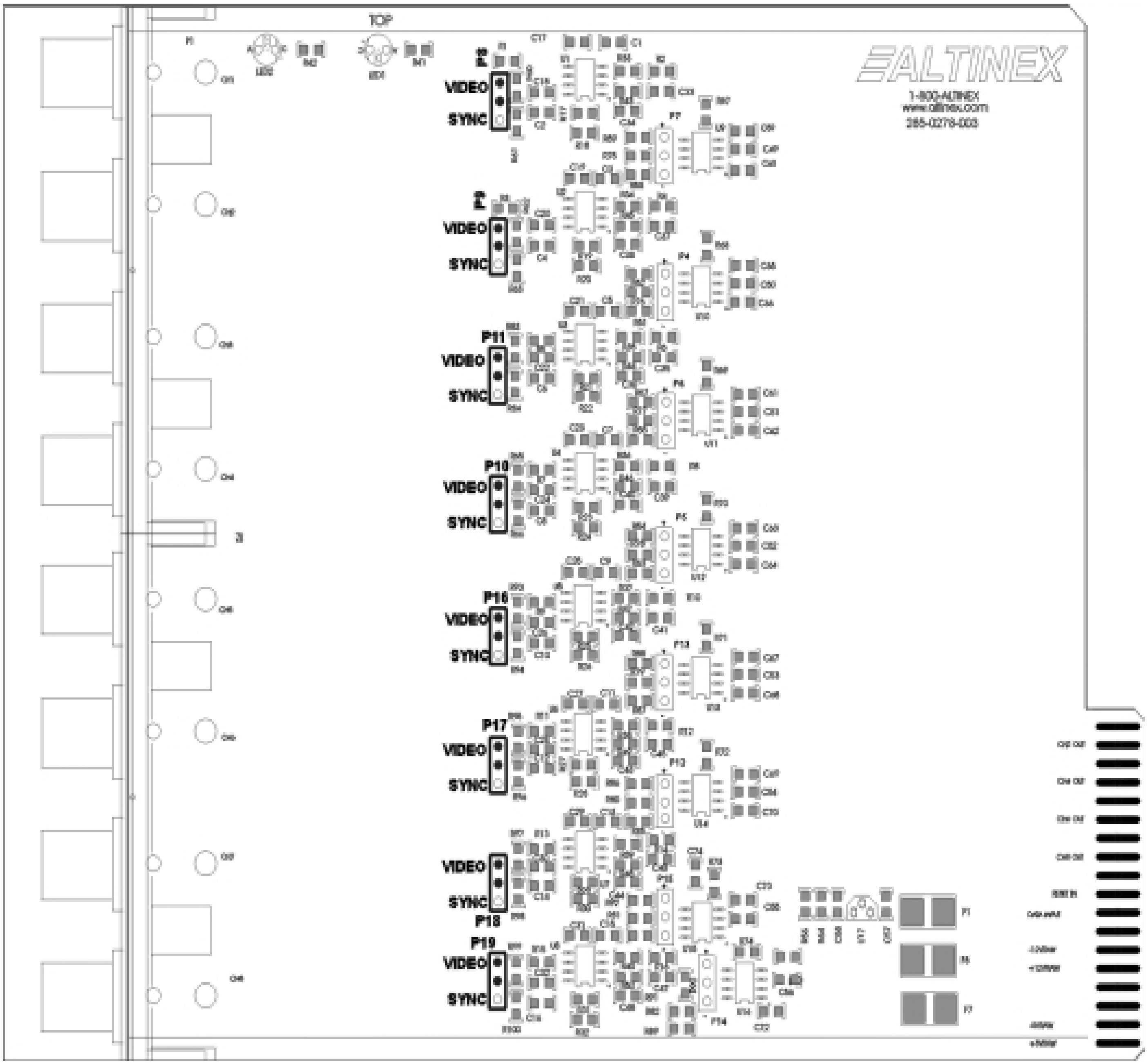
Note: In the diagram above, the jumpers are set for positive polarity on the following ports: P7, P4, P6, P5, P13, P12, P15, and P14. For positive polarity, set jumper on the top pin and middle pin (pins are the dark circles). The jumpers are the dark rectangles on the right side of the diagram next to the bold port numbers.

Application 4: Setting Jumpers for Sync-Negative Polarity (VM2145SS)



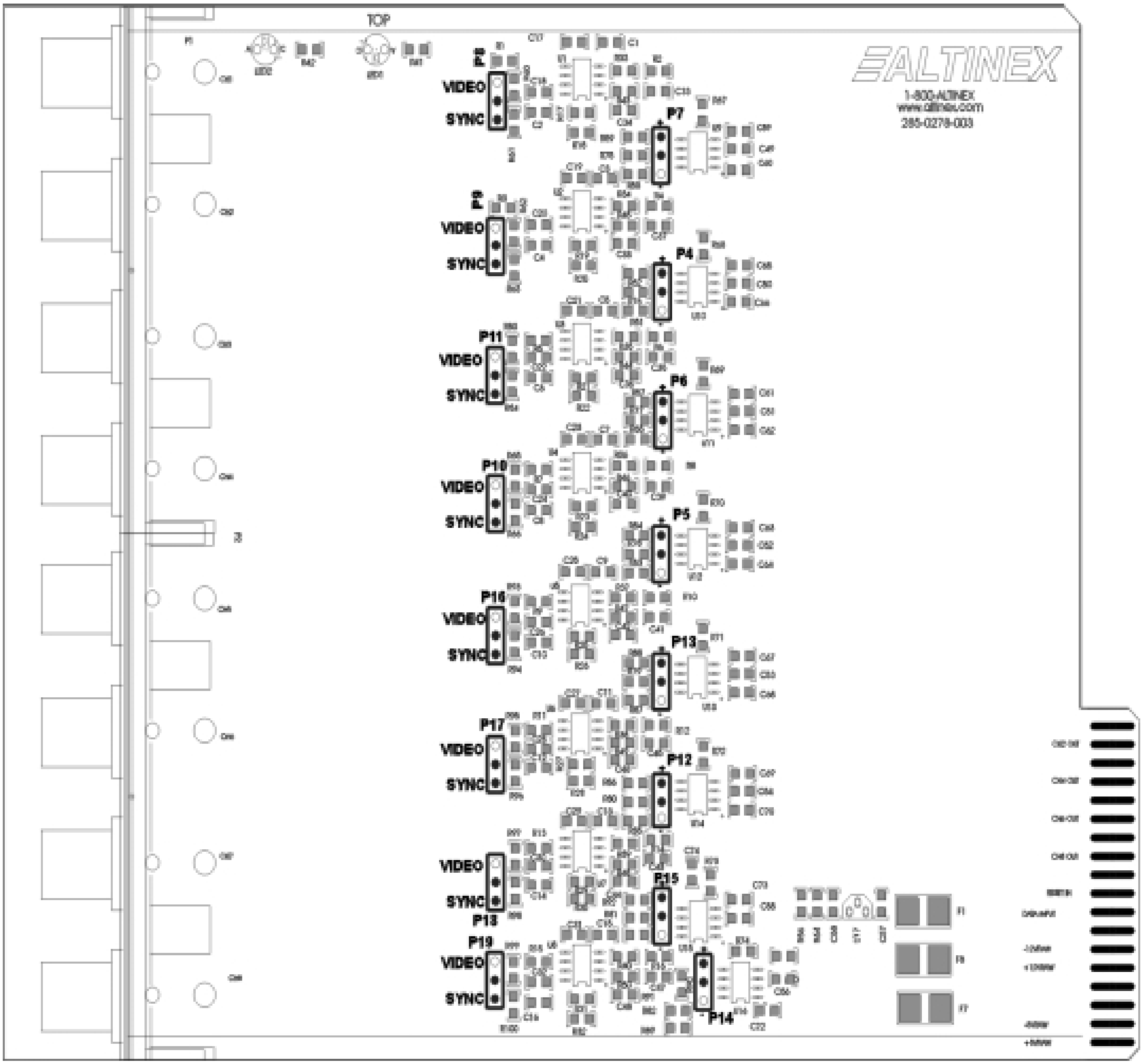
Note: In the diagram above, the jumpers are set for negative polarity on the following ports: P7, P4, P6, P5, P13, P12, P15, and P14. For negative polarity, set jumper on the bottom and middle pins (pins are dark circles). The jumpers are the dark areas on the right side of the diagram next to the bold port numbers.

Application 5: Setting Jumpers for Video (VM2146UX)



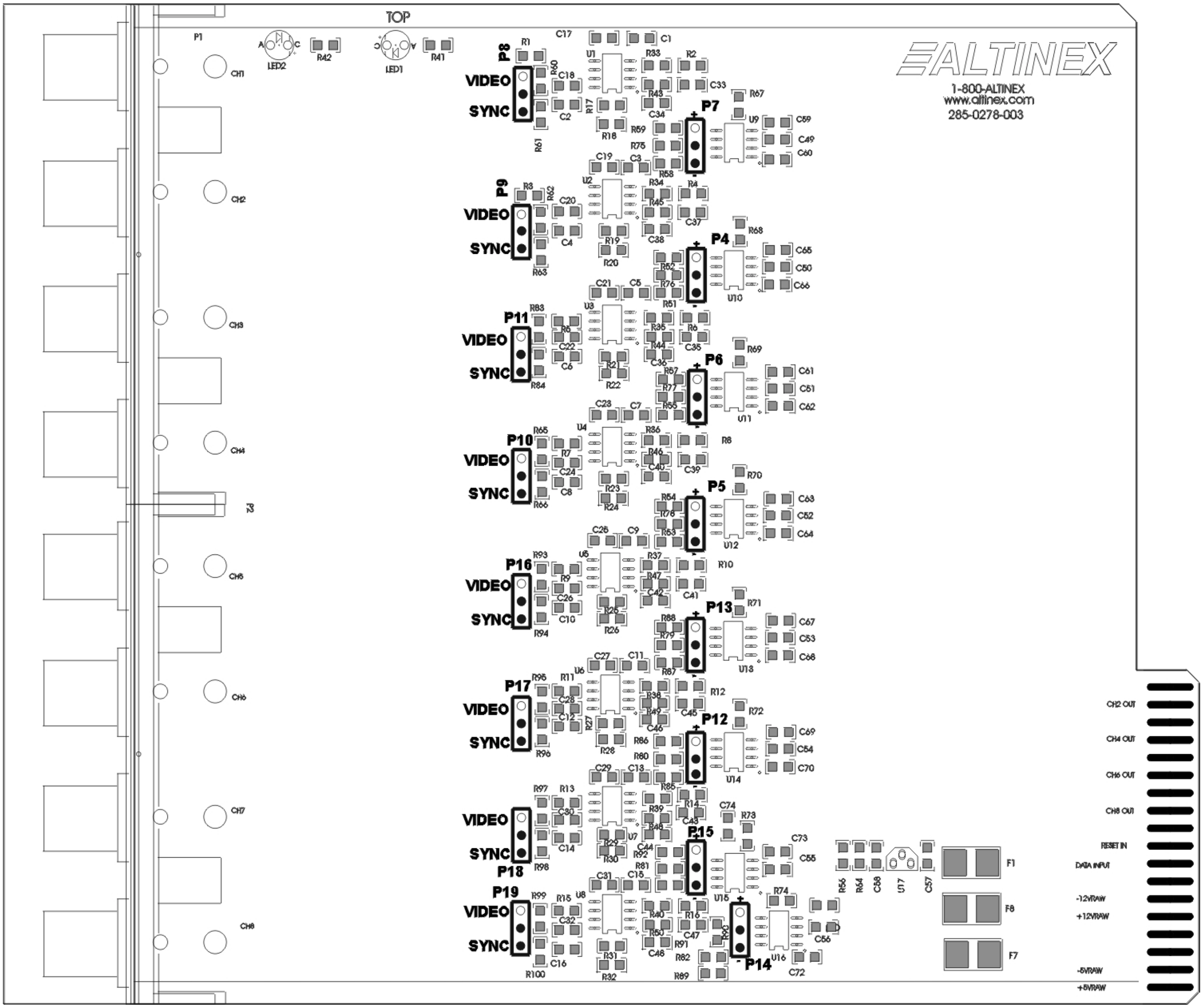
Note: In the diagram above, the jumpers are set for video on the following ports: P8, P9, P11, P10, P16, P17, P18 and P19. For video, set jumper on the top pin and middle pin (pins are dark circles). The jumpers are the dark rectangles on the left side of the diagram next to the bold port numbers.

Application 6: Setting Jumpers for Sync-Positive Polarity (VM2146UX)



Note: In the diagram above, the jumpers are set for positive sync polarity on the following ports: P8, P9, P11, P10, P16, P17, P18, P19, P7, P4, P6, P5, P13, P12, P15, and P14. For sync, set the jumpers on the left to the bottom pin and middle pin. For positive sync polarity, set jumpers on the right to the top pin and middle pin (pins are the dark circles).

Application 7: Setting Jumpers for Sync-Negative Polarity (VM2146UX)



Note: In the diagram above, the jumpers are set for negative sync polarity on the following ports: P8, P9, P11, P10, P16, P17, P18, P19, P7, P4, P6, P5, P13, P12, P15, and P14. For sync, set the jumpers on the left to the bottom pin and middle pin. For negative sync polarity, set jumpers on the right to the bottom pin and middle pin (pins are the dark circles).

INSTALLING YOUR V-MATRIX™ VIDEO/SYNC OUTPUT CARDS 6

Step 1. Slide the **VM2144VS/ VM2145SS/ VM2146UX** and the **VM2143VS** into available slots in the V-Matrix™ Enclosure. Make sure that the cards fit into place. Secure the card to the V-Matrix™ by tightening the retainer screws located on the top and bottom of each cover plate.

Step 2. Connect an output cable from the signal source to the input connector of the **VM2143VS**. Connect the output connector of the **VM2144VS/ VM2145SS/ VM2146UX** to the display devices through an input cable.

Note: To set jumpers for **VM2145SS**, see page 6 and 7 for more information. To set jumpers for **VM2146UX**, see page 8, 9, and 10.

OPERATION 7

The **VM2144VS/ VM2145SS/ VM2146UX** will operate successfully as long as the card is installed properly and other technical specifications are followed.

TROUBLESHOOTING GUIDE 8

We have carefully tested and have found no problems in the supplied **VM2144VS/VM2145SS/ VM2146UX**; however, we would like to offer suggestions for the following:

Make sure that power is connected to the enclosure and also check to see if the **VM2144VS/ VM2145SS/VM2146UX** is pushed in all the way.

Make sure that you have signal sources connected to compatible displays.

If the image quality is poor, please make sure that a high quality of cables is used. We recommend ALTINEX-made cables for best results.

If there is problem with the **VM2144VS/ VM2145SS/VM2146UX** please call ALTINEX at (714) 990-2300.

ALTINEX POLICY 9

9.1 LIMITED WARRANTY

ALTINEX warrants that its products and cables are free from defects in materials under normal use and service. This warranty is limited to repairing at company's factory any part or parts of the product, which upon company's examination shall disclose to be, thus defective. Products considered defective should be returned to company with transportation charges pre-paid within 2 years (90 days for cables) from date of shipment to the purchaser. The warranty is expressly instead of all other warranties expressed or implied. ALTINEX neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of the products. This warranty shall not apply to any product that shall have been repaired or altered outside of company's factory in any way so as, in its judgment, to affect its stability or reliability, or that has been subject to misuse, negligence or accident.

9.2 RETURN POLICY

It is very important to ALTINEX that you receive the products that you have ordered and that this product fulfills your need. In the unlikely event, that an ALTINEX product needs to be returned please follow the policies below:

ALTINEX will accept product returns for a period of 30 days from authorized ALTINEX dealers. Products must be returned in an unopened package.

If a product has been opened, the restocking fees will apply. For the restocking fee amount, please contact an ALTINEX Sales Representative.

If the product is in your possession for more than 30 days, the restocking fees will apply.

ALTINEX will not accept any returns on cables or custom products.

If your product is in warranty and needs service, contact the ALTINEX Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service.

If your product is out of warranty and needs service, contact the ALTINEX Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service. The service charges will be quoted to you before the actual repairs are done.

9.3 CONTACT INFORMATION

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